

A CONSPECTUS OF THE GENUS *OENOTHERA* IN
EASTERN NORTH AMERICA

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THE genus *Oenothera* has been largely neglected by taxonomic botanists, apparently because of the difficulty in recognizing some of the characters in herbarium specimens. When studied in the wild, however, a great range of variation is observed, and when grown in cultures these differences are found to be practically all genetic. The few species recognized by the older taxonomists are therefore shown to be a very inadequate treatment of the genus and the immense amount of variability it contains.

In a monograph published twenty years ago (Gates 1936), many new species and varieties of *Oenothera* were described after growing them in cultures for three generations. Each culture was very uniform except for occasional trisomic or tetraploid mutations, and they bred true from year to year. Subsequent intensive study of many new seed collections from different parts of eastern North America confirmed in the main the earlier judgments and has led to wider views of the geographical distribution of the forms concerned. The cultures from new localities nearly all fit into the categories already described, so it has been necessary to create very few additional species or varieties in the region of eastern North America.

In order to avoid the multiplication of species, a number of the species originally described have here been reduced to varietal rank by attaching them to the particular species to which they are clearly related.

These forms all have a ring of 14 chromosomes and breed true because of the catenation and the presence of balanced lethals. Each strain thus contains two complexes, which are often surprisingly unlike, as shown in crosses with other forms.

Some time ago I examined all the *Oenothera* collections in the Gray Herbarium and found that many of them were clearly referable to species or varieties already described in the above monograph. This extends the known distribution of many forms.

It seemed desirable to make a conspectus of these forms, with

their known localities, as shown below. Under each species or variety described by me is given first the type locality, then other localities from which cultures have been grown (the cultures continuing for three generations, each generally containing at least 35 plants). This is followed by the words "Gray Herb." and then by the localities from which specimens in the herbarium have been identified, with the date when they were collected. In certain other species which I have not grown in culture only Gray Herbarium specimens are cited. And in certain more western and southern forms only the general area of distribution is given. The status of some of these species is still uncertain.

An extensive monograph of *Oenothera* is in course of preparation, including an intensive study of various local populations and a consideration of evolution in the family *Onagraceae*. This list of species, with the localities where they have been found, will serve as an indication of the geographic distribution of the various forms.

As the genetics of *Oenothera* is in some respects unique, a word may be added here regarding the evolution of the genus in North America. Various statements on this subject have been published by me in the last forty years. Beginning with a few large-flowered open-pollinated species surviving in the South, a series of dominant mutations for successively smaller flowers has occurred as the genus moved northwards after the Ice Age. The northward movement was accompanied by the development of chromosome catenation, beginning with a ring of four chromosomes and ending with a complete ring of 14. This was accomplished by an exchange of chromosome ends between certain non-homologous chromosomes. The appearance of balanced lethals in the meantime produced plants which bred true although highly heterozygous. And since the small-flowered species were self-pollinating, each such form might be expected to breed true indefinitely. However, this condition is disturbed by (1) the appearance of mutations, (2) the occurrence of very occasional crosses between different forms where they overlapped in distribution. On the other hand, certain species such as *Oenothera missouriensis* and *Oenothera organensis* retained seven free pairs of chromosomes but

developed a series of self-sterility factors which prevented too much inbreeding. By such mechanisms has developed, in the last 10,000 years or so, the great multiformity of forms now spread over the continent. This can only be regarded as an example of extremely rapid evolution.

DISTRIBUTION OF *OENOTHERA* (*EUOENOTHERA*) IN NORTH AMERICA

Oe. novae-scotiae Gates. Middleton (Annapolis Co.), N. S. Annapolis Valley. Tryon and Ellerslie, P. E. I. GRAY HERB.: Beaver River (Yarmouth Co.), N. S., 1920.¹ Tignish and Alberton (Prince Co.), Mt. Albion and Charlottetown (Queens Co.), P. E. I. Var. ***intermedia***, comb. nov. (*Oe. intermedia* Gates, Phil. Trans. Roy. Soc. **B226**: 266–268. 1936.) Bear River (Digby Co.), N. S. GRAY HERB.: Meteghan (Digby Co.), N. S., 1920. Var. ***distantifolia*** Gates. Kentville (Kings Co.), Newport (Hants Co.), N. S. Var. ***serratifolia*** Gates. Kentville, N. S. GRAY HERB.: Kingsport, N. S., 1901.

Oe. comosa Gates. Wilmot (Annapolis Co.), N. S.

Oe. Hazelae Gates. Lockeport (Shelburne Co.), N. S., and along the south coast to Halifax. Wentworth (Cumberland Co.) and shore of Minas Basin from Advocate Harbour to Five Islands and North River and from Tennycape to Upper Burlington (Hants Co.), N. S. GRAY HERB.: Port Mouton, 1920.² Var. ***parviflora*** Gates. Middleton. Port George on the Bay of Fundy, Port Mouton (Queens Co.) to St. Margaret's Bay, Frayle's Cove and Chester (Lunenburg Co.), Herring Cove, Hubbard and Hubley (Halifax Co.), N. S. Var. ***subterminalis***, comb. nov. (*Oe. subterminalis* Gates, Phil. Trans. Roy. Soc. **B226**: 278–281. 1936.) Higgins Brook and Wentworth (Cumberland Co.), North River (Colchester Co.). GRAY HERB.: Five-mile River (Hants Co.), 1920.³

Oe. grandifolia Gates. Wentworth and Port Howe (Cumberland Co.), Waugh's River (Colchester Co.), N. S. Point de Bute (Westmoreland Co.), N. B. Related forms were grown from East River Point and Blockhouse (Lunenburg Co.) and Halifax, N. S.

Oe. ammophiloides Gates and Catcheside. Guysborough, N. S. and down the coast to Aspatogan and head of St. Margaret's Bay (Lunenburg Co.). Var. ***flecticaulis*** comb. nov. (*Oe. flecticaulis* Gates, Phil. Trans. Roy. Soc. **B226**: 269–272. 1936.) Mouth of Lahave River and Mill Cove (Lunenburg Co.), N. S. Var. ***laurensis*** Gates. Port Elgin and Cape Tormentine (Westmoreland Co.), N. B.; Matapedia, Carleton and New Carlisle, (Bonaventure Co.), Cape Gaspé and Mont St. Pierre (Gaspé Co.), Les Escoumains (Saguenay Co.) and Lake Temiskaming, Quebec. GRAY HERB.: Matapedia, 1928–1929; Carleton, 1904; Little Cascapedia,

¹ The Beaver River specimen differs in having red papillae on the buds.

² This specimen has petals ca. 15 mm., midleaf 6.5 cm. × 10 mm. In my cultures the midleaf was 11–15 cm. × 30–38 mm., showing the effects of cultivation on leaf-size.

³ This specimen differs in having no red papillae on the stem.

1930; Paspébiac Lighthouse, 1902; Manche d'Epée, 1930; Ste. Anne des Monts, 1905; Matane, 1904; Little Metis, 1906; Rivière du Loup, 1913; Mingan Ids, 1924. There are also specimens from Tignish and Cape Aylesbury (Prince Co.) and Wood Island (Queens Co.), Prince Edward Island; and a form in w. Newfoundland (1929) differs mainly in having buds diffuse red with few red papillae.⁴ Var. **parva** comb. nov. (*Oe. parva* Gates, Phil. Trans. Roy. Soc. **B226**: 296-300. 1936.) From Mont St. Pierre (Gaspé Co.) to Bic (Rimouski Co.) and L'Islet (L'Islet Co.), Quebec. GRAY HERB.: Bic, 1904; Gaspé Mountain, 1927; Anse Pleureuse, Gaspé, 1928; Mont St. Pierre, 1932. A narrow-leaved variety with petals 10 mm. long occurs at St. Joachim (Montmorency Co.), Dolbeau (Lac St. Jean Co.) and Ile aux Coudres (Charlevoix Co.), Quebec.

Oe. magdalena Gates, (1951). Magdalen Islands.

Oe. sackvillensis Gates. Sackville (Westmoreland Co.), N. B. Var. **albiviridia** Gates. Sackville (Westmoreland Co.) N. B. Var. **Royfraseri** comb. nov. (*Oe. Royfraseri* Gates, Phil. Trans. Roy. Soc. **B226**: 285. 1936). Sackville (Westmoreland Co.), N. B. GRAY HERB.: McAdam Junction, N. B. 1916.

Oe. leucophylla Gates. St. Vallier (Bellechasse Co.) and Bethier-en-bas (Montmagny Co.), Que.

Oe. biformiflora Gates. South bank of St. Lawrence from St. Roche des Aulnets (L'Islet Co.) to St. Vallier, Charny (Levis Co.) and St. Antoine les Fonds (Lotbinière Co.), north bank at Wolfe's Cove, Quebec City, Richer and Ste. Anne-de-Beaupré (Montmorency Co.), Que. Var. **cruciata** Gates. Quebec.

Oe. Victorinii Gates and Catcheside. Ste. Anne (Kamouraska Co.), Que., Montreal, St. Hubert (Chambly Co.) and Laniel (Temiskaming Co.), Que.; Jordan (Lincoln Co.) and Colchester (Essex Co.), Ontario; Piseco, New York. Var. **parviflora** Gates. Ste. Anne (Kamouraska Co.), St. Antoine (Lotbinière Co.), Three Rivers, St. Vallier, Mistassini (Lac St. Jean Co.), Quyon (Pontiac Co.), Que.; Vineland (Lincoln Co.), Ont.; Piseco, New York. GRAY HERB.: Ancienne Lorette, 1928; Piscataquis River Valley, Me., 1897; Willoughby, Vt., 1896 (petals ca. 20 mm). Var. **intermedia** Gates. St. Vallier (Bellechasse Co.), Ste. Anne de Bellevue (Jacques Cartier Co.), Cap Tourmente (Montmorency Co.), Que. Var. **undulata** Gates. York Mills Road, near Toronto, Ont. Gananogue (Leeds Co.), Fitzroy (Carleton Co.), Ont. Thurso (Papineau Co.), Que.

Oe. angustissima Gates. Ithaca, New York. GRAY HERB.: Springport (Cayuga Co.), 1918, Lansing (Tompkins Co.), 1918, 1919; Hudson Falls (Washington Co.) 1896 and Ithaca Lake Shore near Estys, 1920, all in New York. Var. **quebecensis** Gates. Cap Tourmente, Que.

Oe. apicaborta Gates (1951). Les Piles (Champlain Co.), Que.

⁴ These all have many red papillae on the sepals and stem; ovary 8-11 mm, hypanthium 20-25 mm, bud cone 11-20 mm, sepal tips 2-4 mm. The variety thus extends around the whole Gaspé coast. The leaves are ca. 6-7 cm × 8 mm, much smaller than in cultures (1.9-27 cm × 30-38 mm).

Oe. argillicola Mackenzie. White Sulphur Springs, W. Va., Va., Md. and N. Y. GRAY HERB.: Alleghany Co., 1946, and Botetourt Co., W. Va. (petals 32 mm.) Covington, Va., 1947 (petals 35 mm.); Deerfield (Augusta Co.), Va. (petals 20 mm.) A related specimen in Gray Herbarium from Bedford Co., Pa., 1942, has petals ca. 12 mm. long.

Oe. grandiflora Soland. Dixie Landing, Tensaw, Alabama, (Gates 1915, p. 13). Var. **Tracyi** (Bartl.) comb. nov. (*Oe. Tracyi* Bartl. *Rhodora* **13**: 210. 1911.) Dixie Landing and Birmingham, Alabama.

Oe. laevigata Bartl. White Sulphur Springs, W. Va., and Alleghanies. Var. **scitula** (Bartl.), comb. nov. W. Va. (*Oe. scitula* Bartl. *Cyb. Columb.* **I**: 45. 1914). Var. **similis** Gates. St. Vallier, Que. Var. **rubripunctata** Gates. St. Vallier, Les Escoumains (Saguenay Co.), Que.

Oe. venosa Sh. & Bartl. New York.

Oe. eriensis Gates. Colchester Beach (Essex Co.), Ont.; Collingwood (Grey Co.), and Wasaga Beach on Lake Huron (Simcoe Co.), Ont.; Lake Temiskaming, Que. Var. **repandodentata**, comb. nov. (*Oe. repandodentata* Gates, *Phil. Trans. Roy. Soc.* **B226**: 328–332. 1936.) Colchester, and Colborne (Northumberland Co.), Ont. Var. **niagarensis**, comb. nov. (*Oe. niagarensis* Gates, *Phil. Trans. Roy. Soc.* **B226**: 326–328. 1936.) Niagara Gorge, N. Y., and St. Eustache (Two Mountains Co.), Quebec.

Oe. deflexa Gates. Windsor, Ont. and vicinity, Quyon (Pontiac Co.), Montreal Island, Grenville (Argenteuil Co.), Que. GRAY HERB.: Wentworth Co., Ont., between Dundas and Hamilton, 1940 (petals 6 mm.). Var. **bracteata** Gates. Sandwich and Riverside Drive (Essex Co.), Ont.

Oe. pycnocarpa Atk. & Bartl. Ithaca, N. Y.; Long Island, N. Y.; Vineland (Lincoln Co.), Ont. GRAY HERB.: Oxford, Conn., 1896; Westerly, R. I., 1912; Canton, N. Y., 1914; Ithaca, N. Y., 1915; Tioga Co., N. Y., 1915; Centre Co., Pa., 1915; Canaan Valley, Tucker Co., W. Va. (alt. 900–1200 m.), 1945. Var. **parviflora** Gates. Hamilton and Georgetown, N. Y. Var. **cleistogama** Gates. Clinton, N. Y.

Oe. cleistantha Sh. & Bartl. New York.

Oe. nutans Atk. & Bartl. Ithaca, N. Y. GRAY HERB.: Glen Falls Rd., Warren Co., N. Y.; Garrett Co., Md.; Rappahannock River, Va.; Sussex Co., Va.; Dinwiddie Co., Va.

Oe. atrovirens Sh. & Bartl.⁵ (*Oe. cruciata* deV.) Hudson Falls, N. Y. Var. **Ostreae**, comb. nov. (*Oe. Ostreae* Sturt. *Zeits f. Abst. u. Vererb.* **59**: 367. 1931.) Oyster Pond, Falmouth, Mass.

Oe. cruciata Nutt. GRAY HERB.: Somerset, Me.⁶; Cornish, Me., 1891; Cumberland, Me., 1903; Rollingsford, N. H., 1896; Surry, N. H., 1900; Dublin, N. H., 1897; Brattleboro, Vt.; Vernon, Vt.; Cape Ann, Mass.; Northhampton, Mass.; Axton (Adirondacks)⁷; Granville, N. Y.; Marine

⁵ Renner (1943) has worked out the lethal and sublethal factors in the *flectens* pollen complex of this species.

⁶ Ovary 8–10 mm., hypanthium 28 mm., bud cone yellow, 11 mm., sepal tips 3 mm., subterminal, petals 10 mm., cruciate, midleaf 7.5 cm × 14 mm.

⁷ Differs in having a red stem with red papillae.

City, Mich. Var. **sabulonensis** Fernald. Sable Island, 1913 (type)⁸; J. Macoun, Sable Id., 1899. Var. **stenopetala** (Bickn.) Fern. Nantucket, 1906.

Oe. Robinsonii Bartl. New Hampshire.

Oe. stenomeris Bartl. Maryland.

Oe. brevicapsula Bartl. Chevy Chase, Md.

Oe. paralamarckiana Gates. Penzance, Woods Hole, Mass.

Oe. rubescens Bartl. Nantucket Island, Mass.

Oe. Oakesiana S. Wats. Falmouth and Nantucket, Mass.; New Haven, Conn.; Long Island, N. Y. GRAY HERB.: Provincetown and Falmouth, Mass.; Bridgeport, Conn. Var. **Nobska** (Sturt.), comb. nov. (*Oe. Nobska* Sturt. Zeits. f. Abst. u. Vererb. **59**: 367. 1931.) Nobska Point, Woods Hole, Mass. Var. **Tidestromii** (Bartl.), comb. nov. (*Oe. Tidestromii* Bartl. Cyb. Columb. **1**: 54. 1914.) Tatuxent River (St. Mary's Co.), Md.

Oe. Shulliana Sturt. Morristown, N. J.

Oe. canovirens Steele. Illinois. (Nantucket and Manhattan Island.) GRAY HERB.: Urbana, Ill.; Morgan Co., Champaign Co., Ill. Var. **cymatilis** (Bartl.), comb. nov. (*Oe. cymatilis* Bartl.) Cyb. Columb. **1**: 54. 1914.) Sawyer, (Berrien Co.), Michigan.

Oe. chicaginensis Renner. Chicago, Illinois.

Oe. furca Boedijn. North Town Junction, Minn.

Oe. disjuncta Boedijn. North Town Junction, Minn.

Oe. insignis Bartl. Duluth, Minn.; Saskatoon, 100 mi. north of Saskatoon and Waskesiu, Sask.; Prince Albert, Alta.; Osoyoos Lake, B. C.⁹; Burt, near Moose Jaw, Sask.; Luskville (Hull Co.), St. Jerome (Terrebonne Co.), and Riviere Blanche (Matane Co.), Que.

Oe. perangusta Gates (1950). Stokes Bay, Bruce Peninsula, Ont. GRAY HERB.: Stokes Bay, Dunk's Bay and Queenleen Lake, Bruce Peninsula, Lake Huron, Ont.; Temagami Id., in Lake Temagami, Ont.; Algoma Dist., Ont.; Port Colborne, Ont.; Jackfish,¹⁰ Selin, Ravine Lake, Sleeping Giant, Marie Louise Creek and Mazokama Bay in Thunder Bay District, Ont.; Pike Bay, Cass Lake, Minn.; Red Deer Valley, near Rosedale, Alta.; Sandy Creek, Oswega Co., N. Y.; Ridgeway, Elk Co., Penn. Var. **rubricalyx** Gates (1950). GRAY HERB.: Jackfish, Thunder Bay Dist., Ont., 1933 (Type). Herb. Univ. British Columbia: in sand ballast on railway, Heron Bay, Ont., in vicinity of peninsula about Lat. 48° 45' N. Long. 86° 15' W., *Taylor, Bennan and Harrison*, 1939.

Oe. strigosa (Rydb.) Mack. & Bush. Minn. to Wash., Utah, Kans., N. Mexico. Introduced on Nantucket Id., Mass. GRAY HERB.: Big Timber Creek (Sweetgrass Co.), Mont., 1945; Twilight Gulch (Owyhee

⁸ Ovary 8 mm., hypanthium 25 mm., bud cone 7 mm., sepal tips 1-2 mm., petals ca. 10 mm., cruciate, midleaf 8.3 cm. × 16 mm.

⁹ From seeds collected by Prof. John Davidson.

¹⁰ In 1953, I visited Jackfish and found the original station of the red mutation, a patch of 8 plants, all red but one. In 1954 I found the species (with green buds) very uniform along the north shore of Lake Superior from Schreiber to Heron Bay, Ont., and beyond, but no other red mutations.

Co.), Idaho, 1910; Wyoming, 8200 ft. alt. Var. **albinervis**, comb. nov. (*Oe. albinervis* Gates, Phil. Trans. Roy. Soc. **B226**: 339–343. 1936.) Fargo, Kindred and Barrie, N. Dakota. Var. **procera** (Woot. & Standl.), comb. nov. (*Oe. procera* Woot. & Standl. Contr. U. S. Nat. Herb. **16**: 156. 1913.) Winsor Creek, Pecos National Forest, N. Mex.; Arizona and s. Colorado. Var. **cheradolphila** (Bartl.) comb. nov. (*Oe. cheradolphila* Bartl. Bot. Gaz. **44**: 302. 1907.) Washington and Wyoming. Var. **Cockerellii** (Bartl.), comb. nov. (*Oe. Cockerellii* Bartl. ex DeVries, Gruppenweise Artbildung, p. 56. 1913.) Colorado. Var. **subulifera** (Rydb.), comb. nov. (*Oe. subulifera* Rydb. Bull. Torr. Bot. Club **40**: 66. 1913.) (*Onagra strigosa subulata* Rydb. Mem. N. Y. Bot. Gard. **1**: 279. 1900.) Montana.

Oe. depressa Greene. Custer, Montana. Annual.

Oe. rubricapitata Gates. Kindred, N. Dakota.

Oe. Macbrideae (Nelson) Heller. Twilight Gulch, Idaho. GRAY HERB.: Corral (Blaine Co.), Idaho; Rowland, Nevada, 1912. (Fig. 6, Gates, 1915, p. 31.) Var. **ornata** (Nelson), comb. nov. (*Onagra ornata* Nelson, Bot. Gaz. **52**: 268. 1911; *Oenothera ornata* (Nelson) Rydb. Bull. Torr. Bot. Club **40**: 66. 1913.) GRAY HERB.: Boise, Idaho, 1910, 1911.

Oe. Jamesii Torr. & Gray. Texas, New Mexico. GRAY HERB.: Sonoita Valley, Ariz., 1874 (petals ca. 35 mm.).

Oe. longissima Rydb. Utah, Armstrong and White Canyons.

Oe. organensis Munz. Organ Mountains, New Mexico.

Oe. macrosiphon Woot. & Standl. Contr. U. S. Nat. Herb. **16**: 156. 1913. Not *Oe. macrosiphon* Lehm. in Hamb. Gardenz. **14**: 439. 1858.

Oe. macrosceles A. Gray. Northern Mexico.

Oe. Heribaudii Lev. Mexico, near Puebla.

Oe. Hookeri Torr. & Gray. Mex., N. Mex., Calif., s. Colorado. GRAY HERB.: Lake Merced, Calif.; Walker's Basin, Calif., 1875 (petals ca. 60 mm., midleaf ca. 10 cm. × 18 mm.); Klickitat Co., Columbia River, Wash., 1906. Var. **angustifolia** Gates, var. nov. (*Oe. Hookeri* var. *angustifolia* Gates, nom. subnud., Mutation Factor in Evol. **30**. 1915.) A specie differt, folia angustiora (8–12 mm. lata), subintegra et perobscure denticulata, caulibus gracilibus, claris rubris. Asphalt, Utah, 1894 (Brit. Nat. Hist. Mus.). GRAY HERB.: Smoky Valley, Nev., 1865; Parrott, Colo., 1898; Clark Co., Nev., 1938; Fort Tejon, Calif., 1857; Sisson, Siskiyou Co., Calif., 1912; Klamath Co., Ore., 1936; w. Texas to El Paso and New Mex., 1849, etc. Var. **hirsutissima** (Gray), comb. nov. (*Oe. biennis* var. *hirsutissima* A. Gray, Mem. Amer. Acad. **4**: 43. 1849. *Oe. hirsutissima* Rydb. Bull. Torr. Bot. Club **40**: 66. 1913.) Type from New Mex.; also Colo. GRAY HERB.: Hamilton Co., Kans, 1893; Coconino Co., Ariz., 1934; Brewster Co., Tex., 1936; Santa Fe Canyon, New Mex., 1897; New Mex., 1847, etc. Var. **irrigua** (Woot. & Standl.), comb. nov. (*Oe. irrigua* Woot. & Standl. Contr. U. S. Nat. Herb. **16**: 155. 1913.) New Mexico. GRAY HERB.: Colfax Co., N. Mex., 1934 (7500 ft.); Linda Vista, N. Mex., 1934; Las Cruces, New Mex., 1935; Fort Davis Mts., Tex.; Salt Lake Co., Colo., (6000 ft.),

1934. Var. **Hewettii** (Cockerell), comb. nov. (*Oe. Hewetti* Cock. Gard Chron. **65**: 39. 1919.) Rito de los Frijoles, New Mexico. Var. **parviflora** Gates. Kamloops, B. C. 1889 (British Mus. Nat. Hist.). Var. **Simsiana** (Ser.) comb. nov. (*Oe. Simsiana* DC. Prodrromus **3**: 47. 1828.) Mexico. Var. **franciscana** (Bartl.), comb. nov. (*Oe. franciscana* Bartl. Rhodora **16**: 35. 1914.) Carmel Beach, California. Var. **venusta** (Bartl.), comb. nov. (*Oe. venusta* Bartl. Rhodora **16**: 36. 1914.) San Bernardino Co., Calif. GRAY HERB.: Los Angeles Co., Calif., 1903; Yosemite Valley, Calif., 1911; San Bernardino Valley, 1919; Orange Co., Calif., 1938; Mather, Calif., 1936. Var. **grisea** Bartl. San Bernardino Co. GRAY HERB.: San Diego, Calif., 1875; San Diego Co., 1888, 1916; San Bernardino, Calif., 1896; Orange Co., Calif., 1936.

Oe. Reynoldsii Bartl. Knoxville, Tennessee.

Oe. pratincola Bartl. Lexington, Kentucky. Var. **numismatica** (Bartl.), comb. nov. (*Oe. numismatica* Bartl. Cyb. Columb. **1**: 41. 1914.) Lexington, Ky.

Oe. muricata L. Holland (Introduced). Var. **canescens** (Torr. and Gray) Robinson.

Oe. syrticola Bartl. (= *Oe. muricata* deV.) Woods Hole, Mass.; Orange, Conn. Var. **litorea** (Bartl.), comb. nov. (*Oe. litorea* Bartl. Cyb. Columb. **1**: 48. 1914.) Orange, Conn. A red-nerved form named by Renner from Venice, Italy, belongs with this species.

Oe. ammophila Focke. Bremen, Germany and Heligoland (Introduced).

Oe. gauroides Hornem. Maryland; Virginia. Var. **brevicapsula** (Bartl.), comb. nov. (*Oe. brevicapsula* Cyb. Columb. **1**: 42. 1914.) Chevy Chase, Md.

Oe. ruderalis Bartl. Chevy Chase (Montgomery Co.), Baltimore, Md.; Washington, D. C.

Oe. parviflora L. South Harpswell, Me. GRAY HERB.: Tacoma Park, D. C., 1902; Little Sands (King Co.), Prince Edward Island., 1914 (No. III33).

Oe. biennis L. Holland; Germany; Lancashire Coast, England (Introduced). Var. **cantabrigiana** (Davis), comb. nov. (*Oe. cantabrigiana* Davis. Genetics **25**: 433-37. 1940.) England; Wales; Jersey. Var. **leptomeris** Bartl. Holland; Lüneberg, Germany.

The following are in subgenus *Raimannia*: *Oe. rhombipetala* Nutt. Minn. to N. Y., Mo., Neb., Ark., Texas. *Oe. heterophylla* Spach. Georgia to Texas. *Oe. Drummondii* Hook. Florida to S. Carolina and west to Texas. *Oe. humifusa* Nutt. New Jersey to Florida and Alabama. *Oe. laciniata* Hill. Maine to Virginia, Florida, Ohio, Kentucky, Texas and New Mexico.

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ADVENTIVE PLANTS IN NEW YORK

JOSEPH MONACHINO

THE following waifs, immigrants and escapes were collected in southern New York State and are, with one exception, represented by specimens deposited in the Herbarium of the New York Botanical Garden. The exception is *Aphaerema*, and this and *Pyrularia* were the only ones not collected by the writer. *Aphaerema*, *Photinia* and *Rorippa indica* (and of course the fungus), understandably enough, do not appear in either Fernald's "Gray's Manual of Botany" (1950) or Gleason's "The New Britton and Brown Illustrated Flora" (1952). It is definitely not recommended that these, or the New York find of *Pyrularia*, be entered in standard floras on the basis of the present record. Without further proof of naturalization, such singular discoveries should be regarded as merely casual stations, affording little more than first evidence of certain potentialities. The other species noted below suggest emendations, obviously of a minor nature, in one or both of the latest floras of the Northeastern United States.

Sarcosphaera ammophila (Dur. & Lév.) Seaver. *Monachino 517*, Fire Island, Long Island, Suffolk Co., N. Y., June 20, 1948; sand dunes, abundant over a long stretch (several miles) of shore; large collection made. *Monachino 518*, Gilgo State Park, east of Jones Beach, Long Island, Suffolk Co., N. Y., June 27, 1948; pure sand, a colony about 7 feet in diameter; about a mile further east several additional individuals seen. The writer showed this sand cup-fungus to Fred J. Seaver, who made a special trip to Fire Island to see and collect it for himself. The distribution given in Seaver's "North American Cup-fungi" (1942) is Florida to California and Michigan.

Cynosurus echinatus L. *Monachino 559*, grounds of the New York Botanical Garden, Bronx, N. Y. C., June 13, 1955; growing among awned and awnless forms of *Lolium multiflorum* Lam. with both smooth and